

WHAT IS CLAIMED IS:

10/14
 A1

1. An ultrapure water producing apparatus comprising:

an ultraviolet oxidation unit and an ion exchanger provided in this order from

5 the upstream side of a direction in which pure water flows;

an oxidant decomposition unit for sampling pure water already undergone ion exchange in said ion exchanger, thereby decomposing all of oxidants included in sampled pure water into dissolved oxygen; and

a feedback system for measuring a first dissolved oxygen concentration in said

10 pure water already undergone ion exchange and a second dissolved oxygen concentration in pure water already decomposed in said oxidant decomposition unit to calculate a third dissolved oxygen concentration indicating a difference between said first and second oxygen concentrations, thereby adjusting the amount of ultraviolet light of said ultraviolet oxidation unit based on said third dissolved oxygen concentration.

15
2. The ultrapure water producing apparatus according to claim 1, wherein said feedback system including:

a first dissolved oxygen concentration meter for detecting said first dissolved oxygen concentration;

20 a second dissolved oxygen concentration meter for detecting said second dissolved oxygen concentration; and

a control system for calculating said third dissolved oxygen concentration upon receipt of data from said first and second dissolved oxygen concentration meters and controlling the amount of ultraviolet light of said ultraviolet oxidation unit.

3. The ultrapure water producing apparatus according to claim 1, wherein
said oxidant decomposition unit includes a system for alkalizing said sampled
pure water already undergone ion exchange by introducing an alkali component.

4. The ultrapure water producing apparatus according to claim 1, wherein
said oxidant decomposition unit includes a system for bringing said sampled
pure water already undergone ion exchange into contact with platinum or activated
carbon.

5. An ultrapure water producing apparatus comprising:
at least two ion exchangers provided in series;
a main route provided to flow pure water in the order that said at least two ion
exchangers are provided; and
a plurality of bypass routes connected to said main route for flowing pure water
in the order different from that in which said at least two ion exchangers are provided.

6. The ultrapure water producing apparatus according to claim 5, wherein
said at least two ion exchangers at least include:
a first ion exchanger provided on the uppermost stream side; and
a second ion exchanger other than said first ion exchanger, discharging first
processed pure water,
said plurality of bypass routes include a first bypass route, a second
bypass route and a third bypass route,
said first bypass route supplying said first processed pure water to said at least
two ion exchangers except said second ion exchanger discharging said first processed

Claim 1
pure water,

said second bypass route sending, to said main route, second processed pure water discharged from said at least two ion exchangers except said second ion exchanger which have been supplied with said first processed pure water, and

5 said third bypass route supplying pure water to each of said at least two ion exchangers except said first ion exchanger.

7. The ultrapure water producing apparatus according to claim 6, further comprising:

10 an ultrafiltration film provided downstream of said at least two ion exchangers;
a fourth bypass route for supplying permeate pure water discharged from said ultrafiltration film to said at least two ion exchangers; and

a metal concentration meter for detecting a metal component of said permeate pure water flowing through said fourth bypass route.

15

Sub A a
8. The ultrapure water producing apparatus according to claim 6, wherein said main route includes a plurality of main route valves provided on its route for interrupting supply of pure water to said at least two ion exchangers by each one of said at least two ion exchangers, wherein

20 said plurality of main route valves are closed when flowing pure water through said first to third bypass routes.

9. An ultrapure water producing apparatus comprising
a total organic carbon meter for decomposing an organic substance by applying
25 ultraviolet light to pure water, thereby measuring an organic substance concentration of

said total organic carbon meter includes an oxygen dissolution unit provided on an inlet side of pure water for dissolving oxygen in pure water supplied to said total organic carbon meter.

[illegible]

10

15